

MUST News

Department of Environmental Quality

Winter Issue 2009

Expedited Petroleum Product Recovery

Anyone who has had experience with the remediation of a petroleum release site containing “free product” can attest to the challenges of removal of the floating petroleum product. Product recovery is an expensive, time-consuming process that can be extremely frustrating—especially when it doesn’t work. There are several product recovery options out there, some of which are better than others, and some of which are better suited to certain types of sites than others. The best product recovery option for a site depends on many factors. The type of petroleum product, the amount of product lost, the lithology (rock formation) of the site, and depth to groundwater are a few of these factors.

A belt skimmer is one of the many types of product recovery systems available. A belt skimmer is a continuous loop of a material, such as polypropylene, that is lowered into a well to a point below the product/water interface. The material is oleophilic (likes oils) and hydrophobic (doesn’t like water), so it adsorbs product with very

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Conoco Pop Inn –
Helena, Montana

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Expedited Petroleum Product Recovery - *continued from page 1*

little water. The belt is driven by an aboveground motor, and passes through a wiper or roller mechanism which removes the product for collection. The cleaned belt is then returned back down the well to collect more of the free product. As with other product recovery systems, the Montana Department of Environmental Quality (DEQ) has seen mixed results from the use of belt skimmers, and a close look at a site where this technology has been successful can help pinpoint some of the factors that may predict success.

The former Conoco Pop Inn in Helena, now known as Gabe's Convenience Store, is a prime example of a petroleum release site where belt skimmers were used successfully. The Conoco Pop Inn installed a new 4,000 gallon fiberglass diesel underground storage tank (UST) and began using it in October 1998. Manual inventory records immediately began indicating diesel loss from the UST, but the automatic leak detection system did not detect any leaks, so the inventory records were disregarded. The UST was kept in use for several months more until a stick test performed on February 12, 1999 indicated a 500 gallon loss of diesel over a two hour period. The UST was emptied after this discovery, and on March 3, 1999, the UST was entered and a 22-inch crack was discovered on the south end of the tank, about 5 feet from the bottom of the tank. Further investigation revealed that a backhoe had hit the top of the UST during installation and ruptured it. Therefore, there was rapid fuel loss after the UST was filled, and the leakage did not stop until the fuel level was 5 feet from the bottom. The automatic leak detection system did not detect the fuel loss because the system was meant to detect slow leaks, not large releases.

A review of the previously disregarded inventory records indicated that approximately 11,000 gallons of diesel had been lost since the UST was first used in October 1998. A remedial investigation was conducted and multiple monitoring and recovery wells were installed. By March 5, 1999, approximately 3 feet of product had accumulated above the water table. Free product was present in six of the eight new monitoring wells, and all three of the recovery wells. There was over 4 feet of product accumulated on the water table near the release area and the free product extended across the street.

A full site characterization was completed by an environmental consulting firm. Lithology at the site consists of gravel fill to approximately 4.5 feet below ground surface (bgs), underlain by tightly packed silty clay to approximately 20 feet bgs. The semi-confined aquifer exists at about 32 feet bgs, in a fractured, poorly consolidated shale and mudstone. Hydraulic gradient, hydraulic conductivity, and groundwater flow were measured, and seepage velocity was calculated. These measurements and calculations were used to design a product recovery and groundwater treatment system using several belt skimmers covering the area containing free product.

The product recovery and groundwater treatment system was installed and operational in May 1999. The system involved groundwater removal from three recovery wells and product removal using belt skimmers from the three recovery wells and one monitoring well that contained significant product near the source. Pumps were installed in the three recovery wells to draw down the water table and create a cone of depression, allowing gravity to pull product down into the well where it could be pumped out. Groundwater pumped from the wells was treated through an air stripper and discharged to the municipal sanitary sewer system. Recovered product was recycled into heating fuel.

By 2002, free product recovery rates had started to decline, and soil vapor extraction was initiated to enhance the flow of free product to the recovery wells. In 2003, in situ (in place) flushing/bioremediation using hydrogen peroxide was implemented. In 2004 and 2005, BioSolve and nutrients were injected into the aquifer in an attempt to flush residual free product from the vadose (above groundwater) zone and aquifer.

Between the startup of the first belt skimmer in March 1999 and the shutdown of the last belt skimmers in December 2003, 7,013 gallons of product, out of the 11,000 estimated lost, had been recovered. Currently, no free product is present, and dissolved levels are decreasing.

There are several factors that made product recovery at the Conoco Pop Inn a success. First, the free product area was well defined. The hydrogeology (water related geology) of

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Expedited Petroleum Product Recovery - *continued from page 2*

the area was well characterized, and the appropriate recovery tests and groundwater modeling were performed. And of course, the free product system was well designed. Multiple belt skimmers were implemented with a groundwater pump and treat system to create a cone of depression.

This site is a great product recovery success story and highlights some questions that should be answered before designing any product recovery system regardless of the type of site: 1) Is the type of product and the lateral and

vertical extent of free product defined? 2) Has the amount of free product been estimated? 3) Is the hydrogeology of the area well defined and have recovery rates been estimated?

If these questions are answered, then a free product system appropriate to the site can be designed. Good site characterization and a well designed product recovery system are essential to the success of a free product recovery system. ■

Operator Training

The Underground Storage Tank Section (USTS) of the Montana Department of Environmental Quality continues to mold its Operator Training initiative. You may recall that the Energy Policy Act of 2005 requires that all UST facilities have trained Class A, Class B, and Class C Operators by August 8, 2012. Regulations are to be in effect by August 8, 2009. We're on target for that.

Generally speaking, a Class A Operator is the individual who ensures someone is conducting the proper operation and maintenance on the UST systems.

A Class B Operator is the individual who conducts the operation and maintenance. States may require either site-specific operator training, which is focused only on equipment used at that facility, or broader training regarding requirements for all equipment and methods.

Class C Operators include all of the on-site individuals who may be responsible in the event of an emergency.

USTS intends to address the training of Class A and B Operators in three ways, and Class C Operators in one very general way.

We intend to provide Class A and Class B training via a revised TankHelper and a separate Class A and B training through a self-study workbook. We will provide an approval process for accrediting Class A and B trainers and trainings. Class C operator training will be conducted by Class A and Class B Operators.

TankHelper

In cooperation with Montana Interactive and Ben Thomas Associates, the program is developing TankHelper Version 2 (*see companion article*).

TankHelper Version 2 will offer operators the following training options:

- Class A Operator Training (*statewide*)
- Class B Operator Training in two forms
 - ◆ Facility-specific
 - ◆ Statewide
- Class A and Class B Operator Training (*combined to remove duplication*)
 - ◆ Facility-specific
 - ◆ Statewide
- Compliance assistance training for those who need training after significant violations

The application will present a series of training modules for the trainee with an evaluation along the way. We will offer a management plan and forms in addition to a certification and electronic submittal.

Open Book Workbook

A few years ago, EPA produced the Model UST Environmental Results Program Workbook. It is ideally suited to self-training and evaluation. We are reformatting it to fit Montana's regulations. For those who want to self-train or don't have access to a computer, this will provide a second option.

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Operator Training - *continued from page 3***Accreditation of Trainers, Trainings, and Evaluations**

Our third option is to provide in rule for accreditation of trainers, trainings, and evaluations. It is significant to note that the guidelines provide for evaluations without classes but not for training without evaluations. The evaluation must “be acceptable to the state and reasonably determine that the person tested has the necessary knowledge and skills to be considered competent to operate USTs.”

The Energy Act requires that states “must consider programs implemented by owners and operators.” This third option will do that. We are writing the criteria for accreditation into policy. The intent of the policy will be to allow for:

- private seminar options;
- group-affiliated trainers;
- accredited trainers to conduct on-site individual training; and
- approve of stand-alone evaluations that we think are of merit.

This option in rule will provide for the flexibility to make this initiative achievable and, if we consistently apply good criteria, effective.

The program is currently developing the training criteria. It needs to be written before we can adopt it into rule. Rules are in draft form and ready to go out for comment as soon as the criteria is finished. When the rules have been adopted – probably by mid-summer, USTS will request that owners and operators designate their Class A and Class B Operators to the department so that we can begin the training.

This important training initiative will demystify complex regulations and make the department’s requirements and processes transparent to all. We at DEQ hope that we will never again give you cause to say “We don’t know what you want from us.” ■

Draft Operator Training Criteria Available for Review

The Underground Storage Tank Program has completed a draft of Operator Training Criteria and is making it available to interested parties for their review.

You may recall that the department is providing two forms of operator training for Class A and Class B Operators: TankHelper Version 2 and a self-study workbook. Our proposed rules provide for other options as well. If the petroleum industry wants to facilitate seminars, hire individual trainers, or provide their own training programs, they may; but the department wants to approve the trainers, the material, and the evaluations.

The criteria are proposed as minimum standards by which to evaluate those trainers, trainings, and evaluations. If you would like to review the proposed criteria, please request a copy of the draft from:

USTS/DEQ
P O Box 200901
Helena, MT 59601

or phone (406) 444-5300 or e-mail ustprog@mt.gov.

TankHelper Version 2

Montana jumped the gun a bit with its first version of TankHelper. Operator Training was just a good idea instead of a requirement; and the content of that first version didn't cover everything the Energy Act of 2005 and its ensuing guidelines would say that we must cover. Plus we have to add a test.

We can fix all that. We also learned many ways to make TankHelper more user-friendly, more informative and more interesting. Enter TankHelper Version 2 (V2) – now in development. It is so different from the original that we almost didn't call it TankHelper.

TankHelper V2 will consist of 38 separate video training modules. Using the programming from the original version, operators will only need to view the videos that apply to their situation or facility. Class A Operators will view eleven training videos. Class B Operators will probably view fifteen to twenty modules. Videos range from two minutes to ten minutes each.

These training modules are broken into five sections: Administration, System Layout, Spill and Overfill Prevention, Corrosion Protection, and Leak Detection. At the end of each section will be a quiz.

The modules themselves are narrated by a cast of DEQ staffers and supported by Summary Training Points, bullet points of the information we truly want you to glean from the training. The narration gives context to those bullet points and provides rationale for why they are important to us.

Like the original, TankHelper V2 is being developed in cooperation with Ben Thomas Associates as consultant and Montana Interactive as technical developer. We are almost finished writing the modules and well under way filming them. We have approved the prototype of the application itself and Montana Interactive has begun the actual programming. But much work remains. TankHelper V2 will probably be active in summer 2009.

We expect this new version will provide the most accessible operator training in the nation. It will be comprehensive, facility-specific, available 24/7 and free. We will provide other training options than TankHelper, but this one application should fulfill the needs for the bulk of this huge training initiative. ■

Petro Factoid...

Consumer Price Index and the Petro Fund

The Consumer Price Index (CPI) is used to measure inflation. The CPI, also called the cost-of-living index, is a measure of the price of a set group of goods and services. The amount of inflation is measured by the change in the cost of that group of goods and services over time.

The purchasing power of the Petroleum Tank Release Compensation Fund is declining each year. The cost of goods and services are growing more rapidly than fund revenue.

The average difference between the CPI and the fund revenue values is approximately \$71,000 per year. The divergence leads to a reduction of more than \$1 million in purchasing power over the life of the fund.

Improperly Screened Monitoring Wells

When there is a petroleum release into the subsurface, the contamination will migrate along the easiest path through the soil. This path is aided by gravity, so in most instances petroleum will migrate downward through the soil until it encounters groundwater. Because petroleum is lighter than water, the petroleum contamination will accumulate in the soil on top of the water table. As groundwater flows in the subsurface, it will transport the petroleum floating on top with it. The petroleum contamination will follow the groundwater surface, dissolving within the groundwater as it flows. Typically in Montana the first groundwater surface (or water table) is in unconfined, unconsolidated sediments and the groundwater flow through these sediments mimics the surface topography. The majority of the petroleum contamination, especially near the source area, will be concentrated in the uppermost portion of the groundwater. That is why it is imperative to properly construct monitoring wells so that the screened portion intersects the water table surface, allowing the collection of groundwater samples representative of the worst case groundwater contamination.

The Montana Department of Environmental Quality (DEQ) specifies in Technical Guidance Document #13 that

monitoring wells be screened across the soil/groundwater interface. It recommends that a minimum of five feet of screen be extended above this interface to accommodate any seasonal groundwater fluctuations. When installing a monitoring well, it is important to examine the cuttings for any damp soil or small layers of wet sand or gravel that may signify the surface of groundwater. It is also important to consider the time of year that the well is installed or whether the region is undergoing a drought. As petroleum contamination follows the water surface, it will rise and fall with the seasonal fluctuation of groundwater. The contamination then gets trapped or sorbed onto the subsurface material as it rises and falls causing a small zone of contamination with clean overburden known as a "smear zone." This smear zone is also an important indicator of the groundwater table. If you are drilling a well through relatively clean soil and hit a zone of contamination, you probably hit a smear zone and are very close to the water table. A review of nearby Leaking Underground Storage Tank (LUST) sites should also be performed to determine where the groundwater surface has already been established in nearby monitoring wells.

DEQ cannot accept data from improperly screened monitoring wells, because the water sample collected from

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Petro Factoid...

Water Quality and Unrepaired Leaks

There is no such thing as a small leak. Over a period of months or years, the cost of even the smallest product leak can be very expensive, both in terms of lost gasoline and damage to the surrounding groundwater tables.

Even a small leak can build up to be a large amount of spilled product. For instance, a leak of one or two drops per second builds to 1.2 gallons of leaked product a day, 36 gallons of spill a month or 438 gallons of petroleum released a year.

A ¼ inch stream creates 38.8 gallons an hour, 931.2 gallons a day, 27,936 gallons a month or 335,232 gallons a year!

Improperly Screened Monitoring Wells – *continued from page 6*

them may not represent the contamination present within groundwater. If monitoring wells are completed with the top of the screened interval beneath the soil/groundwater surface, DEQ will require that they be reinstalled. DEQ has generated data showing that improperly screened monitoring wells are not representative of petroleum contamination. At a LUST site in Helena, DEQ required wells with submerged screens to be reinstalled. Total Petroleum Hydrocarbons

(TPH) levels increased from 450 to 4100 parts per billion (ppb), <20 to 3230 ppb, and <20 to 1230 ppb over three events where the improperly screened and properly screened wells were sampled concurrently. In Glasgow, benzene levels jumped from <1 to 260 ppb when the well was installed properly. In Glendive TPH levels rose from <20 to 2,210 ppm after proper reinstallation of the monitoring well. ■

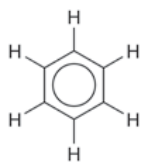
jUST Jargon – Aliphatics and Aromatics

Petroleum is made up of two different classes of hydrocarbons: aliphatics and aromatics. Aliphatic hydrocarbons are open-chained hydrocarbons or cyclic hydrocarbons with primarily single carbon to carbon bonds. Aromatic hydrocarbons are ring structures containing one or more rings of six carbons joined by three single bonds and three double bonds. Aromatic compounds are typically more toxic than aliphatic compounds, but aliphatic compounds are still harmful.

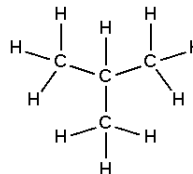
Large groups (or “fractions”) of aliphatic and aromatic hydrocarbons are quantified by laboratory analysis at petroleum release sites because it would be too time consuming and expensive to identify all of the hundreds of chemical compounds present in petroleum products. Aliphatic and aromatic hydrocarbon fractions have been studied for toxicity, and risk based screening levels have been established for comparison to measured concentrations. The aromatic and aliphatic fractions are used to determine the health risk of petroleum products. Due to the higher toxicity of aromatics than aliphatics, the aromatic hydrocarbon standards are lower. Target analytes such as benzene and polynuclear aromatic hydrocarbons are subtracted from the aromatic hydrocarbon fraction and compared to standards on their own because of the unique health risks that they present.

According to Wade Weisman’s “Analysis of Petroleum Hydrocarbons in Environmental Media,” gasoline is approximately 20-50% aromatics and 50-80% aliphatics. The composition of gasoline depends on the crude oil from which it was manufactured, the manufacturing process itself, and is altered by weathering and biodegradation once the gas is released to the environment. Benzene is one of the aromatic compounds present in gasoline, and is also one of the most harmful. Research demonstrates that benzene at relatively low levels causes cancer, and thus, the US EPA human health standard for benzene in water is 5 micrograms per liter, or 5 parts per billion.

Gasoline constituents benzene and isobutane:



Aromatic compound benzene



Aliphatic compound isobutane

The Association of Environmental Health and Sciences Total Petroleum Hydrocarbons Work Group Series, Volume 1: Analysis of Petroleum Hydrocarbons in Environmental Media, Wade Weisman, 1998, pp.98 ISBN 1-884-940-14-5; <http://www.aehs.com/publications/catalog/contents/tph.htm>

Corrosion Protection Variance

Hundreds of Montana facilities need work done to protect vents and risers in contact with the soil from corrosion. Montana Underground Storage Tank (UST) regulations require corrosion protection.

In October of 2002, the UST program wrote a 10 year variance. That was six years ago. The variance expires on October 1, 2012. Don't get caught in the last minute rush. ■



Status of the Petro Fund

The Petroleum Tank Release Compensation Fund assists owners and operators of petroleum storage tanks in cleanup of petroleum contamination and compensation for third party damages.

Board Organization

The Petroleum Tank Release Compensation Board is responsible for administration of the Tank Release Cleanup Fund, which is a statutorily-appropriated special revenue revolving fund established in accordance with §17-2-102, MCA. The Board is comprised of seven members appointed by the Governor.

Legislative Intent

The 1989 legislature stated intent is to provide adequate remedies for the protection of the environmental life support system from degradation and provide adequate remedies to prevent unreasonable depletion and degradation of natural resources.

Fund Solvency

The financial demands upon the fund continue to exceed the available revenue. The board allocates approximately \$4.6 million each year for claims. The Department of Environmental Quality (DEQ) and the board work together to ensure the releases which pose the greatest threat to the environment are funded. The board obligates claim funds to the highest priority releases, which amounts to approximately \$275,000 per month. Owners and operators of lower priority releases are advised that the fund is unable to obligate revenue for the cleanup of low priority releases. As of January 2009, the board has approximately \$1.9 million in corrective action plans that are non-obligated. The fund currently has a backlog of \$2 million in claims from current and prior years that have been reviewed and approved awaiting funding.

For more information, contact board staff at (406) 841-5090. ■

Petro Board Officers

During the November meeting of the Petroleum Tank Release Compensation Board, members chose officers for the next year. Greg Cross was elected by unanimous vote as Presiding Officer. Roger Noble was elected by unanimous vote as Vice-Presiding Officer. This is Mr. Cross's fourth year as Presiding Officer and Mr. Noble's third year as Vice-Presiding Officer. Congratulations to them both! ■

LAWS website

LAWS provides online access to legislative information before, during, and after sessions. With it, Montanans can find:

- ▶ Complete text of legislative bills;
- ▶ Up-to-date status of bills;
- ▶ Committee hearing schedules;
- ▶ Agendas for committee hearings and floor sessions;
- ▶ House and Senate votes on bills.

You can find the LAWS website at <http://leg.mt.gov/laws.htm>.

Efficient Remediation via Soil Vapor Extraction at Dismantled Truck Stop

A large Soil Vapor Extraction (SVE) system was installed last October to clean up contaminated soil associated with a petroleum release at a former truck stop east of Miles City. Given the large volume of contaminated soil and other site specific conditions, soil remediation by SVE is a much less expensive alternative than excavation and disposal.

The petroleum release at this site is associated with former gasoline dispenser islands at a dismantled truck stop. The Montana Department of Environmental Quality ranked it as a High Priority Remediation Release Site.

This SVE system – consisting of 68 wells and more than 1,000 feet of connecting pipelines – uses vacuum pressure to volatilize trapped gasoline product in the soil and simultaneously inject atmospheric air into the soil. The SVE wells and connecting piping are divided into two separate subsystems so that wells of subsystem 1 extract gasoline vapor while the subsystem 2 wells inject air into the soil. Then a timed valve switches to allow air injection at subsystem 1 wells while subsystem 2 wells extract gasoline vapor.

Gasoline is a highly volatile liquid – it quickly goes from liquid state to vapor – and is readily removed from permeable soil by SVE. Injection of air into the soil is pulled through the impacted soil by the opposing vacuum wells volatilizing the trapped gasoline product, and increases natural attenuation by enhancing growth of

naturally occurring bacteria that feed on petroleum. Therefore extraction of gasoline vapor from the soil combined with air injection is an effective method for remediation of gasoline-contaminated soil.

Analytical results show that more than 1,800 gallons of gasoline equivalent petroleum hydrocarbons were removed from the soil by this SVE system during the first two months of operation. The system is currently shut down for the winter to prevent damage due to freezing.

There is a large volume of gasoline impacted soil—9,000 cubic yards—to be remediated from beneath the surface pavement to a depth of about 20 feet. Soil remediation using SVE at this release is estimated to take at least two years.

Groundwater below the contaminated soil contains dissolved concentrations of gasoline as shown by detections of benzene, toluene, ethyl benzene and xylenes in groundwater samples. Remediation of the groundwater has begun with air injection at 12 air sparge (AS) wells to promote natural attenuation.

In the future soil borings will be installed to test completion of the SVE soil remediation and groundwater monitoring will be conducted to determine the effectiveness of the remedial actions. When the contamination levels of both the soil and groundwater are reduced below established human health risks, the gasoline release can be closed.

The SVE method is much less expensive than the alternative soil excavation and land farming or disposal of impacted soil. The projected cleanup price of SVE is about \$135,000 compared with an estimated \$585,000 price tag for excavation. ■



*Above Ground
SVE-AS Piping.*

SAVE THE DATE

Petroleum Tank Release Compensation Board



March 16, 2009

May 18, 2009

July 27, 2009

September 28, 2009

December 7, 2009

10:00 a.m. – 2:00 p.m.

Montana Department of Environmental Quality

Room 111 • Lee Metcalf Building

1520 East Sixth Avenue • Helena, MT 59620

Contact: Terry Wadsworth • 841-5092 • twadsworth@mt.gov

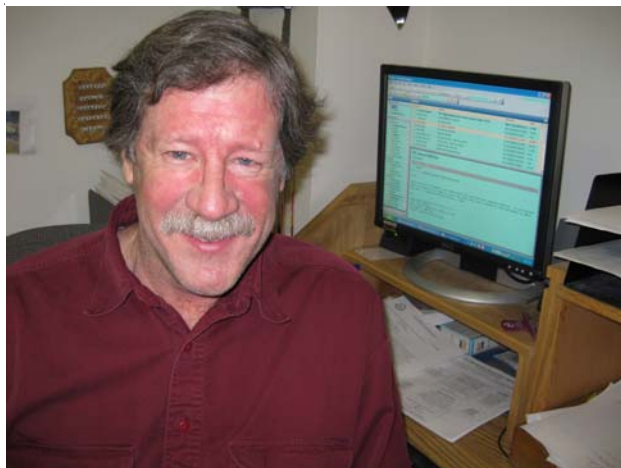
UST Rule Package

The DEQ Underground Storage Tank (UST) Program has written a set of draft rules to implement the operator training requirements of the Energy Policy Act of 2005. We discuss the substance of the operator training rules in our article on Operator Training, but the rule package also contains a handful of other measures:

- We define “primary method” of LD so that we can apply less stringent regulations to secondary forms of leak detection.
- We establish parameters for sump integrity testing, a long overdue measure to ensure secondary containment is liquid tight – if it is the primary leak detection method.
- We will require positive shut-down capabilities on all systems with the equipment to do so. If a leak detection alarm can turn the turbine off, we want it to do so. As it is now, alarms are being ignored.
- We define monthly monitoring to clarify the interpretation which we have always applied.
- Monthly monitoring means that an operator must look at the monthly leak test results monthly.
- We add that we can suspend or revoke an Operating Permit if “continued operation poses a substantial, imminent risk to human health or the environment.”
- We give ourselves the authority to apply a more lenient corrective action timeframe for violations that are not of “major” significance.
- Two housekeeping measures:
 - ◆ changing the reference in Administrative Rules of Montana (ARM) 17.56.401(3) from “.403(2)(d)” to “.403(b)(iv)”
 - ◆ change the wording in (ARM) 17.56.701(1) from “owners and operators notify” to “an owner or operator notifies.”

This rule package will be out for public comment in the near future. ■

Moving On



Bill Rule

After nearly nine years as Environmental Program Manager for the Department of Environmental Quality (DEQ) Underground Storage Tank (UST) Section and one and a half years with the Petroleum Tank Release Compensation Fund, Bill Rule has decided to put tanks behind him. Rule plans to move on from his position in state government at the end of March.

Rule was self-employed for thirty years before joining the DEQ and his plans are to return to running a business. “I am reinventing my old business called *The Common Market*, this time with a consignment element,” says Rule.

He’ll still be protecting and improving the environment for Montanans with a message of reduce, recycle, and reuse. “My goal is to minimize the waste stream and address the sustainability of our planet by making it possible for folks to purchase things already made. There is inherent utility and quality in older things.”

Rule is leaving a legacy of accomplishments at DEQ. Under Rule’s watch, the UST Section implemented the third party inspection program where licensed inspectors, rather than DEQ staff, conduct UST inspections with DEQ oversight. “It meant a more efficient, streamlined process.” It also required operating permits for owner/operators. “Everyone gets inspected every three years or they don’t get to stay in business.”

Rule has presented at about six national conferences and served on two national workgroups. “That’s where I’ve had the most impact in the global sense.”

One workgroup built online inspector training for EPA. The other wrote EPA guidelines for states regarding operator training requirements. Under the Energy Policy Act of 2005, states are required to have operator training authority in place by August 2009, and by August 2012, all operator/owners must be trained.

Rule was ahead of the national curve when he launched Montana’s online “TankHelper” training in 2006, which landed the department several state and national awards. He’s now scrambling to finish the improved version, “TankHelper 2,” which is scheduled to debut this summer.

“Our mission is trying to keep gasoline out of the groundwater through leak prevention and early detection. Our regulations are complex and prescriptive, so the idea behind TankHelper is to simplify the information owner/operators need and strip out what they don’t need,” says Rule.

He says the hard part of leak prevention and early detection is you can’t see USTs so you don’t know what’s going on down there and you don’t think about them. Bill has one final farewell message for operator/owners.

“Operator training is your friend. We know you face challenges every day running a business, making payroll, keeping up the books and hiring staff. It is easy to forget the parts of that business that are underground because you can’t see them. Please, don’t forget them.”

Rule says he won’t forget you or his colleagues at DEQ. He says you can always pay him a visit at *The Common Market* in downtown Helena, where he’ll bend your ear about reuse and a sustainable environment, and maybe engage in some tank talk too. ■



Bill Rule – Presenter at TankHelper 2 Training

Enforcement Review

The Department of Environmental Quality has collected penalty payments totaling \$3,903 for violations of the Underground Storage Tank Act identified in the third and fourth quarters of 2008.

Wibaux County Billings paid a penalty in the amount of \$895 for failure to conduct leak detection at their Wibaux County Maintenance Facility.

An \$829 penalty was paid by The Worster Group, LLC for failure to correct a moderate leak detection violation within the corrective action timeframe at their Fast Trip Conoco facility in Missoula.

Prairie States Co-op of Zahl, North Dakota paid a penalty in the amount of \$1,354 for failure to obtain an UST compli-

ance inspection at least 90 days prior to expiration of the operating permit and operating a UST facility without a valid operating permit at their Prairie States Co-op facility in Dagmar.

Violations identified as distributing a regulated substance into UST's that do not have a valid operating permit at the Swan Lake Stage Stop in Bigfork resulted in a \$300 penalty for Tabish Brothers Distributors, Inc. of Missoula.

For more information, contact John Arrigo, Enforcement Division, (406) 444-5327, jarrigo@mt.gov. ■

Aboveground Storage Tank Owner/Operator Self-Inspection

The staff of the Petroleum Tank Release Compensation Board, with the assistance of an advisory group, developed a self-inspection checklist for use by owners and operators of bulk aboveground storage tank facilities. The checklist was prepared to increase owner/operator awareness of the current requirements the board consider for eligibility to the fund. It will inform owner and operators what they need to do to be in compliance and position themselves as eligible for fund dollars should they have a release. The self-inspection checklist is available at: <http://deq.mt.gov/pet/NewNewsDocs/SelfinspectionChecklist120208.pdf>.

Aboveground Storage Tanks have not been subject to the same level of regulation as underground tanks. As a result, the fund does not have the means to mitigate future risks. The board is considering requiring an inspection by a compliance inspector or a self-inspection as a requirement for fund eligibility. Several board members have concerns about consistent verification of compliance status of the aboveground storage tank facilities compared to the under-

ground storage tank facilities. The board is considering how to proceed with the concept and will be seeking input from numerous interest groups and individuals throughout the state.

Written comments about the self-inspection checklist should be sent to Terry Wadsworth at twadsworth@mt.gov. ■

Attention Distributors!

Please tell your home heating oil customers to call 1-406-841-3911 within 24 hours after a known or suspected release.

Chemical Health Effects...More on Benzene

As owners and operators, you and your staff are subjected to specific industry specific health risks due to exposure to the products that you store in your USTs. Benzene is one of many compounds that pose a specific risk to the health of those in contact. As an additive, benzene increases the octane rating of fuels and reduces motor knocking. The fall 2008 issue of *MUST News* provided some information about the health effects of Benzene. Below you will find additional news about how benzene may have a negative impact on your health.

Benzene Exposure

Benzene is a toxic chemical compound that has been used for a variety of industrial and commercial purposes since its discovery in the mid-1820s. Benzene is a common additive to gasoline. Benzene exposure can lead to the development of a number of serious health hazards. As such, certain regulations have been instituted within the United States in order to protect the public from any benzene exposure risks.

Types of Benzene Exposure

People can be exposed to benzene in one of three ways:

- Inhalation
- Ingestion
- Transdermal absorption

Benzene inhalation results from the breathing of benzene vapors. Such exposure is particularly detrimental to one's


health when it occurs in high levels or over a significant period of time. Benzene inhalation can elicit a number of serious effects, some of which include dizziness, rapid heart rate (tachycardia), chronic headaches, muscle twitching (tremors), confusion, drowsiness / unconsciousness and death.

Benzene Exposure and Leukemia

Benzene exposure even in small doses over time has proven capable of causing a number of adverse health effects, few more serious than the development of leukemia, a potentially fatal cancer of the blood and bone marrow. Regardless of the manner in which someone is exposed to benzene (inhalation, ingestion or absorption), there is a potential that the exposure could cause the development of acute myeloid leukemia (acute myelogenous leukemia - AML). AML sufferers have abnormal blood cell production in their bone marrow, leaving them susceptible to infections and other problems related to an immune system deficiency.

The EPA seeks less benzene in gasoline by 2011. The new standard will cut 19,643 tons of benzene from gasoline when the controls on refiners take effect in four years. In addition, several other rules currently in force will have the side effect of cutting benzene from all of these sources, reducing benzene from its 1999 level of 250,000 tons, the most recent figure available. ■

jUST Jargon – Flex Connectors

 Flex connectors are stainless steel components that connect metal, flexible, or fiberglass reinforced piping to other system components. Flex connectors can typically be seen at the end points in a piping run, such as at the turbine or dispenser. Used for product delivery, they are considered part of product piping. They are also employed in vent lines.

They can be bent tighter than flexible plastic piping. A 1.5-inch diameter flex connector can handle a bend radius of 11 inches. A 2-inch diameter flex connector can bend at a 12 inch radius.

Flex connectors will rust when in contact with the soil and must be protected from corrosion. Because they are short, it is often easiest to isolate them from the soil with watertight boots.

From UST to Water Quality

If you're reading a copy of *MUST News* it is thanks in part to Lisa Tucker who has been responsible for the database and distribution of the newsletter for the last nine years. Tucker just recently moved on from her position as Data Control Specialist with the DEQ Underground Storage Tank Section (UST) to join the DEQ Water Protection Bureau as Computer Data Systems Analyst.

"I am excited for the challenge of a new job but I will miss the regulated community who I have worked with regularly on the phone. I have known them for a long time," says Tucker.

One of the many accomplishments she can cite while working for UST is the third party inspection program that the section implemented where licensed inspectors, rather than DEQ staff, conduct UST inspections with DEQ oversight.

Congratulations, Lisa, on your new job. The *MUST News* team will miss you! ■

PTS Acting Supervisor

As an Environmental Enforcement Specialist for the Department of Environmental Quality (DEQ) Enforcement Division, Darrick Turner has applied his knowledge of geology and USTs in his job as enforcement liaison to the DEQ Petroleum Technical Section (PTS) and has even authored a few *MUST News* articles. Now, Turner is joining the PTS as Acting Supervisor for the next six months.

Turner will be assuming a temporary mobility assignment on February 16, 2009 and will remain in the position until mid-August. Turner comes to the PTS with a strong science and compliance regulation background.

He will be responsible for supervising a staff of 13 people and will report to the Hazardous Waste Site Cleanup Bureau Chief, Mike Trombetta. Turner can be reached at dtuner2@mt.gov or (406) 841-5059. ■

Call for Articles...



The *MUST News* production team welcomes your articles about successful cleanups or lessons-learned from the operation and maintenance of petroleum storage tanks. Please contact Mary Ann Dunwell at mdunwell@mt.gov or (406) 841-5016, if you would like to submit an article. We would like to reserve the right to edit if necessary.

Fund and Release Status Report

Petroleum Fund Financial Status — End of 2nd Quarter, Fiscal Year FY 2009

(July 1, 2008 – December 31, 2008)

Total Revenue:	\$2,960,479
Claims Expenditures:	\$1,633,093
Total Expenditures:	\$2,511,145
Outstanding Work Waiting to be Obligated:	\$1,618,550

Petroleum Releases – End of 2nd Quarter, FY 2009

(July 1, 2008 – December 31, 2008)

New Releases:	17
Releases Resolved (Closed):	35

Petroleum Release Activity Status – Since Fall 2008 *MUST News*

(October 1, 2008 – January 23, 2009)

New Releases:	10
Releases Resolved (Closed):	15

Petroleum Release Activity – January 1, 2008 through August 28, 2008

New Releases:	14
Releases Resolved (Closed):	38

Summary of Total Petroleum Release Activity

Total Confirmed Releases:	4,442
Total Active Releases:	1,640
Total Releases Resolved (Closed):	2,803

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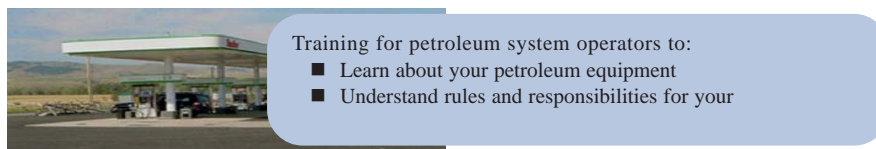
Lisa Tucker





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